Commonwealth of Massachusetts

RIVERWAYS PROGRAM

Building Partnerships, Protecting Rivers

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What's Up (or Down) with Streamflow? Part 1

Dear River Advocates,

All of us at Riverways are pleased that so many of you were able to join us at the Mass. Stream Flow Conference last April. We hope you got as much out of the presentations and interaction with Conference presenters and other attendees as we did. I want to reiterate thanks to our co-hosts, the Nature Conservancy, and to, the Massachusetts Environmental Trust for providing much of the funding, to Sandra Postel and the speakers and moderators, to the Massachusetts Instream Task Force for their suggestions as well as to Margaret Kearns, Riverways Watershed Ecologist and RIFLS Coordinator for her vision and determination to make the Conference happen and to Gabrielle Stebbins, RIFLS Technical staff, for overseeing all the logistics for the conference – great job! For those of you that weren't there (or even if you were), we hope the two-part article we present in this and the next *NewsNotes*, recounting Conference presentations on streamflow science, management approaches and workable solutions, will be of use to you in advocating for streamflow protection in your own communities and watersheds. In the meantime, I wanted to make you aware of some recent streamflow-related developments taking place in the last several months and/or in the near future.

Many of you may already know that the Mass. Dept. of Environmental Protection (DEP) issued a new Water Management Policy in April of 2004 (see http://www.mass.gov/dep/brp/wtrm/files/wmafinpol.doc) intended to reduce the adverse impacts of public water supply water withdrawals and consumptive use in basins defined as "hydrologically stressed" (see "stressed basin" discussion below). DEP's policy requires that communities in stressed basins seeking new or increased water withdrawal volumes via permits under the Water Management Act (WMA) take steps to conserve water, limit excessive summertime demands, and evaluate ways to offset water withdrawals by increasing the amount of water returned to the basin. The policy expresses DEP's intention to apply similar conditions to those it is employing in modified WMA permits in the highly-stressed Ipswich River watershed to other river basins determined to be hydrologically stressed.

Unfortunately, some towns and water districts have been taken aback by DEP's new policy. Some feel that the

policy's limit of 65 gallons per person per day (gpcd) is too restrictive, though research has shown that homes with water efficient appliances can easily use only 45 gpcd (and winners of the Ipswich River Watershed Association (IRWA)'s annual water conservation contest routinely use less than 20 gpcd!). Some also feel that DEP's effort to get communities to keep summer water use to no more than 125% of average water use is an unreasonable goal. Some feel a reluctance to restrict their customers' outdoor water use. Another complaint is that current predicted water shortages and low streamflows are not due to water supply management or use but are really due to poor growth management strategies which water departments and districts typically have little or no control over. Fortunately, the capable staff of the Charles River Watershed Association, which played a key supporting role to IRWA in the Ipswich basin to help restore a more natural flow regime in the Ipswich River, are working hard to raise the public consciousness in the Charles River towns currently affected by DEP's new policies about the importance of retaining water in the natural environment to support healthy aquatic and other water-dependent organisms and ecosystems (see the "blue town campaign" at http://www.crwa.org/index.html?wavestop.html&0).

Many of you have asked about local actions directed at curtailing the high summer use of water at a time when riverine organisms and habitats are most vulnerable to harm from low streamflow levels exacerbated by reduced groundwater recharge due to groundwater pumping. At IRWA's Annual Meeting this week, a panel discussed the effects of private wells on the river as well as the possibilities of regulating them. After hearing excellent presentations from a hydrogeologist and a lawyer, the conservation agent from Topsfield discussed the town conservation commission's regulation prohibiting private wells for the purpose of lawn watering in the wetland and river buffer zones, and the Stream Team Chair from Middleton discussed their two new bylaws concerning lawn watering that included residents obtaining water from the Town or from private wells. If you would like to see copies of these bylaws, please let us know.

Speaking of the Ipswich, you may know that the U.S. EPA awarded a Targeted Watersheds grant to the Mass. Dept. of Conservation and Recreation (DCR) and IRWA to implement innovative strategies to help restore the Ipswich River basin to hydrological balance and ecological health. To that end, DCR recently announced that it will be funding new rainwater harvesting systems to be installed at selected locations in the Ipswich watershed town of Wilmington this summer (see http://www.mass.gov/dcr/news/rainharvest.htm). Contact Sara Cohen of DCR at (617) 626-1374 or sara.cohen@state.ma..us for more info.

Another DCR staffer, Anne Monnelly, has been coordinating an effort this spring on behalf of the Mass. Executive office of Environmental Affairs (EOEA) and the Mass. Water Resources Commission (WRC) where some proposed revisions to the Mass. Water Conservation Standards are being considered in the light of advances in the science of water conservation that have taken place since the Standards were first issued over a decade ago (see http://www.mass.gov/envir/mwrc/pdf/Conservation_Standards.pdf for the existing Standards). Anne's research into water conservation standards and practices is appearing to confirm that a higher level of water conservation and efficiency can now be achieved by water supply systems and users than is called for in the existing Standards. While Anne is hoping to complete her research and pass along draft recommendations to the WRC in the near future, she would still be happy to hear about good examples of water conservation and efficiency standards and practices among public water suppliers and users in this state and elsewhere. Please contact Anne at (617) 626-1395 or anne.monnelly@state.ma.us if you know of anything or would like to know more about this initiative.

Speaking of the WRC, this spring a proposal was jointly made by Samantha Woods of the Weir River Watershed Association (http://www.weirriver.org) and Riverways to have the Weir River watershed classified by the WRC as a "stressed basin" (see "stressed basin" discussion below). The Weir River and many other coastal watersheds had not been included in DCR's original stressed basin analysis because of the lack of USGS streamgage data. Riverways

RIFLS staff took data from a WEIR River stream flow study (commissioned several years ago as part of EOEA's Watershed Initiative) and used DCR's original methodology for assessing hydrological stress to show that the WEIR River was under a high degree of hydrological stress. The RIFLS staff also looked at fish and macroinvertebrate data and found mostly "generalist" (i.e. pond) species, thus supporting the highly stressed nature of the river. In June, the DCR staff recommended to the WRC that the Weir River be added to the official list of high stressed basins; this recommendation is expected to come up for a formal vote by the WRC at its next meeting in July.

* * *

In addition to celebrating the rivers and streams of the Commonwealth, June Rivers Month's Proclamation celebrates your work on behalf of rivers. And all the events draw attention to the rivers and the work to protect and restore them. Events this year have included canoe races and trips, hikes, educational activities, tracing migratory fish, fishing derbies, River Fests and Festivals, speakers…the list goes on and on. The Rivers Month Proclamation was given at the Westfield River Wild and Scenic event celebrating the doubling of the number of miles of the Westfield River designated as Wild and Scenic. Thanks to all of you for sharing your events and to the staff at Riverways for compiling them into the calendar.

As June ends, Riverways also wants to celebrate the innovative and impressive work of Karen Pelto, River Restore and Special Projects Coordinator. After 13 years at Riverways, Karen is planning this fall to go to graduate school in public policy with a concentration in natural resources. While we congratulate her on her exciting new endeavor, she certainly will be missed. We also want to acknowledge her tremendous accomplishments and contributions to restoring and protecting rivers across Massachusetts. Karen came to Riverways in 1992 as our Stream Ecologist and worked on water quality, fish and flow issues and served also as the Fishway Stewardship Coordinator. Karen commented on permits, attended WRC meetings and worked on a variety of projects. In 1999, Karen became the River Restore Coordinator. Her contributions include serving as the lead or liaison for three dam removals in Massachusetts: Housatonic River removal with Crane and Company; Town Brook dam removal with the Town of Plymouth and Yokum Brook Silk Mill removal with the Town of Becket.

During this time, Karen worked with partners from federal and state agencies, corporations, municipalities, contractors, non-profits and citizens. She mobilized support, gave many outstanding presentations and raised money for restoration. In order to explore all aspects of dam removal, Karen participated in the Aspen Institute both sharing her expertise and learning from experts around the country. The Aspen Institute resulted in an impressive report: "Dam Removal—a New Option for A New Century". In addition to initiating Riverways Environmental Risk Index, RISQA and (working with University of Massachusetts, the Watershed Initiative, Sweetwater Trust and local partners) River Continuity, Karen participates in sediment projects on the Assabet River, continues to work on dam removal projects in several watersheds, and she leads the Neponset River Initiative for the Commonwealth. This year, under Karen's leadership, we have been looking at restoration and remediation possibilities for the Neponset River, strategies for the future as well as environmental literacy to involve the public in meaningful dialogue. We plan a party in for Karen in September—more information will be forthcoming!

See you on (or in?) the rivers!

Joan Kimball
Director

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What's Up (or Down) with Streamflow? Conference Recap and Update – Part 1.

Riverways hosted the first-ever Massachusetts Stream Flow Conference at the BU Corporate Education Center in Tyngsborough on April 29th. We are extremely grateful for the help, encouragement and support we received from The Nature Conservancy, the Massachusetts Environmental Trust, the Massachusetts Instream Flow Task Force (MIFT) and others in putting on the Conference. We are also thankful that so many of you (more than 250 people!) chose to spend a beautiful spring Friday to join us at the Conference. The first part of this two-part article presents a brief recap of some of the Conference presentations focusing on the science of streamflow. [Those hoping to get more in-depth information might want to go on-line to http://www.mass.gov/dfwele/river/streamflowconference.htm, where we have posted (as .pdf files) most of the PowerPoint presentations made at the Conference, as well as responses to the evaluation forms where we asked Conference attendees about what they thought are the most pressing issues regarding streamflow and how they planned to use what they learned from the Conference.]

The purpose of the Conference was to present the science on the functions and values of streamflow, to discuss the adverse impacts resulting from various human-caused disturbances to the natural streamflow regime, and to describe innovative approaches employed in Massachusetts and elsewhere to restore our rivers and watersheds to hydrological balance and ecological health. Sandra Postel, Director of the Global Water Policy Project in Amherst, Massachusetts, inspired Conference attendees with her opening remarks. After prefacing her speech to say that she is proud to be from Massachusetts because of the many progressive water management policies and actions that have taken place here (e.g., Mass. was the first state to require low-flow toilets in new construction), Sandra launched into a cautionary tale about unsustainable levels of water use worldwide that, while temporarily propping up the global economy, are resulting in serious, long-term (and, in many cases, irreversible) degradation of rivers, wetlands and other aquatic ecosystems. Conventional economic balance sheets do not take proper account of the loss of ecological services (such as providing spawning and nursery habitat to fish) caused by the desiccation and subsequent degradation of aquatic ecosystems.

After quoting Albert Einstein, who said, "It is impossible to solve a problem with the same mind set that created it", Ms. Postel called for a new approach that recognizes hydric ecosystems' intrinsic value and proactively allocates enough water to sustain healthy freshwater ecosystems. She cited a notable precedent to this effect from South Africa where, in the post-apartheid era, water laws were re-written using the Public Trust Doctrine to establish a water reserve to meet the basic instream needs of people and hydric and other water-dependent organisms and habitats before any irrigation or other out-of-stream consumption is permitted. Placing sustainability boundaries on taking water from the natural environment helps to drive water usage efficiencies, which Sandra feels can be doubled over current levels. She noted that one of the biggest opportunities for shrinking unnecessary water use is by reducing lawn watering. It so happens that a good deal of lawn watering is necessitated by the use of lawn chemicals, which can threaten the health of children, pets and adjacent aquatic ecosystems. Ms. Postel urged the audience to take action to play the "public health" card to reduce the usage of lawn chemicals in their communities, and she predicted that if the campaign is successful that a reduction in lawn watering will be achieved at the same time.

Several Conference speakers focused on the science of flowing waters and how disruption of the natural flow regime can adversely affect riverine ecosystems. Riverways' Margaret Kearns pointed out the damage caused by the proliferation of impervious surfaces in an urbanizing watershed. The resulting hydrological alteration causes "spikier" high flows, capable of scouring aquatic organisms out of their habitats, while at the same time the reduced recharge to groundwater means lower low flows, increasing the vulnerability of aquatic habitats to sediment, thermal and other pollutant overloading. Sewer pipes running through wetlands and along rivers can be a source of pollution (when overloaded and/or broken pipes leak raw sewage into the surrounding environment) as well as desiccation (when clean surface and/or ground water gets info the pipes). [This latter problem, part of a phenomenon called infiltration and inflow ("I/I" for short), can also reduce water supply yields where sewer pipes run through source water areas.] Margaret has compiled an inventory of more than 250 locations throughout the Commonwealth [see http://www.mass.gov/dfwele/river/rivlow_flow_inventory/home.html] where unnaturally low streamflows have been observed, along with some discussion on the possible cause(s) of those low flow conditions, along with general info about how unnatural low flow conditions can be harmful to riverine organisms and habitats.

Todd Richards of the Mass. Division of Fisheries and Wildlife presented the concept of a "target fish community", i.e., the assemblage and proportion of fish species that would be expected to occur in a particular waterway in the absence of significant human interference. Comparing the target fish population to the actual fish population is a good way to measure the extent to which riverine habitat has been altered and degraded from a naturally-flowing regime suitable for fluvial specialists and dependents (i.e. "river" fish) to one where the habitat generalists (i.e., "pond" fish) predominate. While the state's more than 3000 dams are arguably the biggest factor in creating "pond fish" instead of "river fish" habitat in many of our rivers and streams, streamflow depletion caused by water withdrawals, reduced recharge and other factors are of particular concern to the Commonwealth's remaining "coldwater" streams. Coldwater streams (where summer temperatures do not normally exceed 68°F, and/or which harbor naturally-reproducing populations of trout and/or other coldwater-dependent fish), are typically smaller streams that, due to their modest size, are particularly vulnerable to hydrologic alteration. Todd has compiled a statewide list of streams he knows to support naturally-reproducing trout or other "coldwater" fish that he would like to get into the hands of local conservation commissions to enable them to take action to safeguard these sensitive riverine habitats before they suffer significant harm.

Dave Armstrong of the USGS discussed the functions and values of a natural streamflow regime in supporting a healthy aquatic ecosystem, and the problems that can ensue when that regime is altered by water withdrawals or other means. While this alteration can be particularly problematic in the summer months (as Dave illustrated with dramatic photos of a dry Ipswich River bed), it can also disrupt anadromous fish migration patterns at other seasons of the year if streamflow volumes are insufficient to trigger the appropriate response. While Dave acknowledged that natural low flow conditions (around .3 cubic feet per second per square mile of watershed, or cfsm) would be expected to occur in the Ipswich from time to time, even in the absence of any human activity, hydrologic alteration of the natural streamflow regime in the Ipswich watershed has led to an increase in the frequency, duration and/or severity of low flow conditions and has placed a severe stress on riverine aquatic organisms and habitats. Dave's research has moved beyond the Ipswich to document similar problems on other river systems in the MA/RI region. His last slide contained the following statement: "Streamflow requirements and statistics determined from USGS studies are being used to guide the development of stream flow policies and water-withdrawal regulations in Massachusetts".

Linda (Marler) Hutchins from the Mass. Dept. of Conservation and Recreation (DCR) described the development of the "stressed basin" methodology, where USGS streamgage data was statistically analyzed to determine which river basins appear to be under hydrological stress and have lower streamflows than they should. The data was compiled

into a statewide "stressed basins" report and accompanying map, which was approved by the state Water Resources Commission (WRC) in December of 2001 (see http://www.mass.gov/envir/mwrc/pdf/Massachusetts_Stressed_Basins.PDF). The stressed basin report and methodology have since been relied upon in water management policy and regulations and in evaluating additional areas for possible designation as stressed basins (more about this "*Dear River Advocates*" above). In the meantime, former DCR staffer Vicki Gartland, who developed the stressed basin methodology, convened a group at the WRC's request to develop a set of statewide streamflow standards. A number of meetings took place in 2004, but the effort has slowed due to Vicki's departure. Linda then presented the "target hydrograph" concept, which represents a "normal" or un-impacted streamflow range and (if achieved and maintained) is believed to represent adequate streamflow levels to sustain a target fish community and a healthy aquatic ecosystem. Linda is hoping that, using the USGS's latest "index gage" analysis (see, e.g., http://water.usgs.gov/pubs/wri/wri034332/), target hydrographs can be developed, along with streamflow standards, on a statewide basis and presented to the WRC in the next year or two.

Wayne Ives, a streamflow specialist from the NH Dept. of Environmental Services (DES), wrapped up the first segment of the Conference with a presentation on his efforts to quantify and protect instream flows on in a pilot project involving two river systems in southern NH (see http://www.des.state.nh.us/rivers/instream/). Wayne is employing the Public Trust Doctrine and riparian rights to develop a management plan that allows out-of-stream water use while maintaining adequate instream flow levels to support suitable habitat and recreational conditions. Wayne observed that water withdrawals from shallow streamside wells can convert "gaining" streams (where groundwater discharges normally boost streamflow levels) to "losing" streams where water from the stream flows into the ground and eventually up into the well. Ives further noted that the groundwater discharges received by "gaining" streams (often referred to as "baseflow") is almost always a cool temperature, which helps insulate the stream from extreme temperature fluctuations. Reduce the baseflow via water withdrawals or other means, and the stream and its biota become increasingly vulnerable to thermal and other impacts.

The title of Peter Weiskel's PowerPoint presentation was "How can Massachusetts be running out of water? (The basics of stream-aquifer interaction)". Weiskel, who serves as Chief of the Ground-Water Studies Section at the USGS's MA/RI office in Northboro, pointed out that although the state is relatively "water rich", due to its abundant and evenly-distributed precipitation, the rate of groundwater recharge (baseflow) varies considerably over the year, dropping in the spring and summer due to increased evapotranspiration rates and again in the winter as the ground surface freezes. In addition, consumptive water use is seasonal, typically peaking during the warmer months, caused primarily by outdoor watering. Last but not least, water is often transported away from its source and out of basin following use, leading to a permanent loss of groundwater recharge needed to replenish aquifers and stream flows. The result is a loss in streamflow, which Peter illustrated by focusing on the effects of a shallow streamside well on a nearby stream. After pumping begins, the height of the water table drops around the wellhead and changes the pattern of groundwater flow. The groundwater gradient is tipped toward the well rather than toward the stream, resulting in the well intercepting groundwater that would otherwise have ended up in the stream (also known as capturing baseflow). As pumping proceeds, the well "pulls" water out of the stream, into the ground and up into the well (via induced infiltration). Continued operation of the well can eventually deplete all the stored groundwater around it, as well as dry up the adjacent stream. Management solutions that can reduce streamflow depletion generally entail some combination of the following: increase recharge to the aquifer; bring water use into phase with the recharge cycle (i.e., reduce summer consumption); reduce use of streamside wells in the summer (use aquifer and/or reservoir storage away from the stream); and don't export water downstream or out of basin.

[Note: Further discussion of the various solutions emerging from the Massachusetts Stream Flow Conference that may help bring our river systems and watersheds back to hydrological balance and ecological health will be covered in

Part 2 of this article, which will run in the next (#17) issue of *NewsNotes*.]

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Resources and Grants

Grant Opportunities

Calling all shutterbugs! The National Park Service is seeking your photos of National Natural Landmarks (NNL) for the 2nd Annual NNL Photo Contest. National Natural Landmark designation is bestowed upon natural areas that exemplify our country's biological and geologic heritage. The nearly 600 NNLs nation-wide (including eleven in Massachusetts) possess scientific significance, educational value and exceptional scenic beauty (see http://www.nature.nps.gov/nnl/Registry/USA_Map/ for a geographic listing). The top 12 winning photos will be compiled into a calendar made available to the public, showcasing the aesthetic and ecologic values of NNLs and further encouraging their wise stewardship. All winners will receive the calendar in which their photo appears, and 1st, 2nd, and 3rd place winners will also receive a limited-edition NNL pin and NNL t-shirt. Entries will be accepted through Thursday, June 30th and voting will take place early this fall. For more info on how to enter the contest, contact Deb DiQuinzio at (617) 223-5064 or go on-line to http://www.nature.nps.gov/nnl/photocontest/index.cfm.

The Groundwater Foundation (http://www.groundwater.org), a national nonprofit organization dedicated to educating the public about the nature and value of groundwater, is currently accepting nominations for its four national awards. These awards honor individuals who create a legacy of groundwater protection through local action, education, government service, and youth leadership. The awards include: the Vern Haverstick Groundwater Hero Award to showcase groundwater protection activities by the unsung, yet heroic, efforts of community residents; the Edith Stevens Groundwater Educator Award, to recognize educators who understand the importance of groundwater, motivate others to protect groundwater, and lead by personal example; the E. Benjamin Nelson Government Service Award, to recognize and honor an elected or appointed public official who has significantly advanced environmental and groundwater stewardship; and the W.C. Foxley-E.P. Taiganides Youth Award for Excellence and Leadership in Groundwater to honor a student for his/her dedication to promoting local groundwater protection. In addition, the student's actions must have the ability to be replicated by other students and the potential to empower his/her community to protect groundwater. Award recipients will receive complimentary travel, lodging, and registration for The Groundwater Foundation's Annual Conference November 2-4, 2005, in Nebraska City, Nebraska, and will be honored at an Awards Luncheon held November 4. All nominations must be received by July 14, 2005. Please visit the Foundation's website above for nomination instructions and brief biographies of past award recipients, or contact the Foundation for more info at info@groundwater.org or (402) 434-2740.

The Mass. Dept. of Conservation and Recreation's Urban and Community Forestry Program recently announced the availability of its FY06 Urban Forestry Planning and Education grants. The application documents are posted on-line at http://www.mass.gov/dcr/stewardship/forestry/urban/urbanGrants.htm. The deadline for submitting a proposal is (postmarked by) July 15th, 2005. For more information, contact Eric Seaborn at eric.seaborn@state.ma.us or (617) 626-1468.

The Conservation Fund is accepting nominations until July 21 for the American Land Conservation Award.

Established in 1996, the award recognizes outstanding volunteer leadership in land and water conservation. The recipient will receive a $50,000 prize, the nation's largest to a volunteer in conservation. For more information, go on-line to http://www.conservationfund.org or call Alisa Borland at (703) 525-6300.

The National Park Service offers technical assistance to communities, watershed associations and others through its Rivers, Trails, and Conservation Assistance (RTCA) Program (http://www.nps.gov/rtca). RTCA accepts proposals (for technical assistance from RTCA staff, not funding) once a year. The 2005 deadline is August 1 (but you are advised to begin conversations with RTCA staff to shape your proposal as soon as you can). For info on how to apply, go on-line to http://www.nps.gov/ncrc/programs/rtca/contactus/cu_apply.html. To see a list of 2005 community projects, see http://www.nps.gov/ncrc/programs/rtca/whatwedo/wwd_2005_proj.pdf. Lastly, here's a link to the RTCA's 2004 report (http://www.nps.gov/rtca/servingcommunities.pdf). For more info, contact the RTCA's Charles Tracy at (617) 223-5210 or charles_tracy@nps.gov.

The Mass. Executive Office of Environmental Affairs (EOEA)'s Division of Conservation Services (DCS) recently announced the next round of grant funding from the Self-Help, Urban Self-Help and federal Land and Water Conservation programs. The filing deadline is 3 PM on Monday, August 1, 2005. The priority for this year¹s Self-Help grant round will be for the protection of coastal and estuarine property; sensitive stream, river, lake and pond watersheds; and biological conservation (especially rare species habitats). Projects which fall under lands mapped in the Statewide Land Conservation Plan, and those that augment or connect to existing conservation lands, and thereby help to preserve the integrity and health of the local or regional ecosystems, will receive greater consideration for funding. The priorities for this year¹s Urban Self-Help grants will be the innovative re-use of brownfield sites and projects that provide recreational opportunities to urban populations. Projects that serve to stabilize neighborhoods or are part of urban center revitalization efforts will be given special consideration as will those that demonstrate innovative water control systems. Applicants must be sure that projects advance Sustainable Development objectives (see http://www.mass.gov/envir/sus_dev/default.htm) by protecting significant environmental or recreation resources, guiding development away from sensitive natural resources and to appropriate development areas, or maximizing public access via alternative transportation modes (e.g., public transit, bicycle, walking). This year, both rating systems have been significantly amended to give more points for natural resource value (especially water resources and green infrastructure), and a community¹s sustainable development track record as measured by the Commonwealth Capital Score. Proposals that involve inter-municipal and municipal-state cooperation, and multiple partners including non-profits, are encouraged. Please contact DCS at (617) 626-1011, if you wish to learn more about these grant programs and to request an application package. More information and application forms may also be found on the DCS web page at http://www.mass.gov/envir/dcs.

Millions of culverts, dikes, water diversions, dams, and other artificial barriers have been constructed throughout the U.S. to impound and redirect water — all changing natural features of rivers and streams. Many dams are obsolete and no longer serve their original purpose. Culverts that funnel water beneath roads and train tracks often pose insurmountable barriers to fish. Barriers prevent natural fish migrations, keeping them from important habitats for spawning and growth. As a result, some populations of native fish are gone and others are in serious decline. The U. S. Fish and Wildlife Service's National Fish Passage Program is a voluntary, non-regulatory program that provides funding and technical assistance toward removing or bypassing barriers to fish movement. The Program is looking for community-minded organizations, agencies and individuals to partner with on fish passage projects (see (http://fisheries.fws.gov/FWSMA/FishPassage/FPPDF/guidance.pdf). Eligible projects include any activity that directly improves the ability of fish or other aquatic species to move by reconnecting habitat that has been fragmented by barriers. By August of each year, project proposals must be provided to the local Fish and Wildlife Management Assistance Office, which are then reviewed and prioritized on a Regional basis (Mass. is in the

Northeast Region – see http://fisheries.fws.gov/FWSMA/FishPassage/FPPrgs/R5/Region5.htm). Projects that receive the highest consideration will be those that show the greatest ecological benefits; exhibit permanence of fish passage benefits; make use of the most current scientific knowledge and proven technology; evidence the greatest public support; and generate the maximum in matching contributions. For more info on how to craft submit a fish passage enhancement project proposal for consideration for USFWS support, contact David Perkins at (413) 253-8405 or David_Perkins@fws.gov.

The National Fish and Wildlife Foundation is offering the 2005 Native Plant Conservation Initiative, which provides federal dollars to nonprofit organizations and government agencies to promote the conservation of native plants. There is a strong preference for "on-the-ground" projects that involve local communities and citizen volunteers in the restoration of native plant communities. Projects that include a pollinator conservation component are also encouraged. Grants range from $5,000 to $40,000 with an average grant size of $15,000. It is expected that all grant funds will be matched by non-federal contributions from project partners. The pre-proposal deadline is August 15, 2005. Application guidelines are available at http://www.nfwf.org/programs/npci.htm.

The Art & Community Landscapes Program, a partnership of the National Endowment for the Arts, the National Park Service and the Boston-based New England Foundation for the Arts, seeks qualified artists to apply for funding of site-specific public art projects. Art & Community Landscapes addresses the natural environment through projects that may include temporary or permanent art installations, exhibitions, interpretive media or festivals. This year, grants of up to $50,000 per site will support projects at two sites: the "Allston-Brighton Lincoln Street Green Strip" in Boston and the Schuylkill River Water Trail Project in Reading, PA. Artist guidelines and application materials area are available at http://www.nefa.org; the application deadline is August 15, 2005. For more information, contact Christine Lamas at clamas@nefa.org or (617) 951-0010.

The National Science Foundation (NSF)'s Science and Society Program considers proposals that examine questions that arise in the interactions of engineering, science, technology, and society. There are four components: Ethics and Values in Science, Engineering and Technology (EVS); History and Philosophy of Science, Engineering and Technology (HPS); Social Studies of Science, Engineering and Technology (SSS); and Studies of Policy, Science, Engineering and Technology (SPS). The components overlap, but are distinguished by the different scientific and scholarly orientations they take to the subject matter, as well as by different focuses within the subject area. The Science and Society Program is currently soliciting proposals for the following modes of support: Science and Society Scholars Awards; Standard Research Grants and Grants for Collaborative Research; Science and Society Postdoctoral Fellowships; Science and Society Professional Development Fellowships; Doctoral Dissertation Research Improvement Grants; Small Grants for Training and Research; Conference and Workshop Awards; and other Funding Opportunities. Grants will range in size from a minimum of $5,000 to a maximum of $150,000. The proposal deadline is August 23, 2005. For more information, go on-line to http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf05588 or contact Ronald Rainger at (703) 292-7283 or rrainger@nsf.gov.

The outdoor gear company Patagonia provides grants to organizations that identify and work on the root causes of environmental problems and that approach issues with a commitment to long-term change. The company looks for programs with a clear agenda for change and a strategic plan for achieving the organization's goals. To apply, organizations must demonstrate a strong base of citizen support. Projects funded also must be action-oriented, build public involvement and support, be strategic, focus on root causes, accomplish specific goals and objectives, and take place in communities in which Patagonia does business. Grant proposals are due on August 31st. For more information, visit: http://www.patagonia.com/enviro/grants_app.shtml#apply.

The Gulf of Maine Council on the Marine Environment is calling for nominations for two annual recognition awards. The Gulf of Maine Council Visionary Awards are given to two individuals, businesses, or organizations within each state and province bordering the Gulf, to recognize innovation, creativity, and commitment to protecting the marine environment. The Longard Volunteer Award is given to an outstanding volunteer within the Gulf watershed (see http://www.gulfofmaine.org/images/maps/watershedmap-hires.jpg) who has made significant contributions to conserving or managing the Gulf's resources. The deadline for nominations is September 2, 2005. Go to http://www.gulfofmaine.org/council/opportunities/ for further information and to download the nomination forms.

The Massachusetts Office of Coastal Zone Management (MCZM) will soon be releasing a Request for Responses (RFR) for the Coastal Pollutant Remediation (CPR) Grants Program, which funds projects that address stormwater discharges from municipal roads, highways, or parking areas or for municipal boat sewage management efforts. Cities and towns located within the boundaries of the Massachusetts coastal watershed (defined rather broadly to include most cities and towns in eastern MA – see http://www.mass.gov/czm/twnscws.htm) are eligible for funding. Go to http://www.mass.gov/czm/jobsandgrants.htm, for up-to-date information on the RFR.

The New York City-based Nathan Cummings Foundation's Environment Program http://www.nathancummings.org/enviro/index.html seeks to address the root causes of environmental degradation. While measures such as the Clean Water Act, the Clean Air Act, and the National Environmental Policy Act, have been effective to a point, they are not comprehensive enough to deal with the overall threats to the environment and their impact on our health. Often specific corporate and other institutional interests, rather than environmental needs, prevail in environmental policies. Without sufficient countervailing forces holding decision-makers accountable for their actions, the increase in such influences on decision-makers and public policy can lead to the undermining of the environment. The Foundation's funding priority is given to projects with the potential of having state, multi-state, or national impacts. To apply, send a 2-3 page letter of inquiry at any time containing the information set out at http://www.nathancummings.org/programs/000016.html, and the Foundation's staff will respond promptly. Tax-exempt organizations whose projects fit most closely with the Foundation guidelines will be asked to submit a full application for consideration at the Foundation's spring or fall board meetings. For more information, contact: Peter Teague, Environmental Programs Director, The Nathan Cummings Foundation, 475 Tenth Avenue, 14th Floor, New York, NY 10018, (212) 787-7300 or (212) 787-7377 (fax).

The Associated Grant Makers (AGM) maintains an on-line list of many of its member private family and other foundations at http://www.agmconnect.org/About/memprivate.htm. Many of the listed names are "active" (i.e., clicking on them will take you directly to that particular foundation's website). Last but certainly not least: thanks to a generous grant from the George Gund Foundation, River Network recently established an on-line document entitled the *River Advocates Fundraising Guide: A Handbook for River and Watershed Organizations* (see http://www.rivernetwork.org/fundraisingguide/).

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Calendar

The Urban Ecology Institute (http://www.UrbanEco.org) is hosting a course entitled *Foundations Of Urban Ecology: Boston As A Field Study Model*, on weekdays (8:30AM to 3:30PM) from July 18 - 26, at Boston College (BC)'s Newton

Campus. As a part of the Teachers for a New Era initiative at BC, this course brings together educators and environmental professionals in a collaborative effort to explore the physical and biological aspects of urban ecosystems. It will build a base for understanding how urban ecosystems function and respond to change. Further, it will establish sound scientific observation and sampling techniques for educators to implement with their students and provide a forum for discussions about pedagogical strategies that promote student learning and enhance community stewardship. For more info, contact Dawn Chávez chavezda@bc.edu or (617) 552-1473.

The New Hampshire Environmental Education Institute (which includes the University of New Hampshire (UNH) Cooperative Extension, New Hampshire Fish and Game, UNH Center for Freshwater Biology, UNH Natural Resources Department, and NH Audubon) are offering their popular 10 day *Watershed Ecology Summer Institute*. This hands-on workshop is designed particularly for Science Educators (formal and informal), Youth Leaders and Community Leaders/Volunteers. The course is scheduled for July 25-29 and August 1-5 2005, 8:30 AM-3:30 PM, at Bow High School in Bow NH (near the junction of I-93 and I-89, just south of Concord, NH). The course covers watershed delineation, NPS pollution; stream, lake and estuarine ecology; wetland and upland plant communities, as well as aquatic resources management and GIS mapping and resource inventories. Classroom lectures are combined with daily field trips. It can be taken as a non-credit certificate course or through UNH Continuing Education as an upper undergraduate or graduate course worth two credit hours. Space is limited and on a first come first served basis. For additional info, contact Laura Ryder at NH Fish and Game at (603) 271-3212 or go on-line to http://www.wildlife.state.nh.us/Education/Education_PDFs/Watershed_Ed_Summer_05.pdf .

Chris Mattrick, New England Wild Flower Society (NEWFS) Senior Conservation Program Manager, and Erin Haney, Vermont District Wetlands Ecologist, will introduce you to native and invasive riparian plants and demonstrate and explain best practices along watercourses to control invasives and erosion, and protect water quality and wildlife in a free field program entitled "*Riparian Zones: Land along Creeks, Streams, Rivers, Lakes, Ponds and Wetlands*". The program takes place on Friday, August 6, 2005 from 9AM to 3PM at the Rosa Tyson Gym, Rt. 132, South Strafford, VT. Sites to be discussed include the Ompompanoosuc River in S. Strafford and the Connecticut River in Fairlee, VT. This is one workshop in the NEWFS's biodiversity series "Best Practices for Landowners and Land Managers- 2005". No pre-registration is required. For a detailed description and location of the workshop, go on-line to http://www.newfs.org or call NEWFS at (508) 877-7630, ext. 3303

Located in the heart of downtown Great Barrington, MA, the Housatonic River Walk (http://www.gbriverwalk.org) is a citizen volunteer effort to reclaim riverfront access from trashed and abused areas. The work of 2000 volunteers, River Walk demonstrates simple, innovative methods to promote biodiversity and to protect the river's resources. This unique trail location affords a rare opportunity to walk along the scenic Housatonic near the water's edge. A workshop entitled 'Native Natives'— Plants along the Housatonic River Walk, is scheduled for Saturday, August 20 from 9AM – 12noon. Workshop participants will learn about riverine ecological restoration via native plant identification, native seed collection and plant propagation, and how native plants are used to attract wildlife and improve water quality. Presenters include River Walk's Founding Director Rachel Fletcher and restoration landscapers Monica Fadding (of Marconica) and Heather Cupo (of Plant Euphoria). The workshop is free, but limited to 15 people. Pre-register by Saturday, August 10, by contacting Rachel Fletcher at (413) 528-3391 or river@gbriverwalk.org.

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On-line Resources

Produced by the U.S. EPA with the assistance of Tetra Tech, Inc., each issue of the Nonpoint Source *News-Notes* newsletter is typically jam-packed with informative, useful and highly-readable articles and other reference material describing successful nonpoint source pollution reduction and prevention tools, techniques and programs as well as items of related interest. The most recent issue (#75, published last month) is no exception, as it contains feature articles on the economic benefits of source water protection and national wildlife refuges, successful examples of low impact development (LID), and urban, river-focused eco-tourism. Current and past issues of this publication are available on-line at http://www.epa.gov/newsnotes.

The U.S.EPA maintains a website devoted to water efficiency (http://www.epa.gov/owm/water-efficiency/) which is primarily concerned with municipal water use. Efficient water use helps to reduce the need for costly water supply and wastewater treatment facilities, helps maintain stream flows and healthy aquatic habitats, and reduces the energy used to pump, heat and treat water. A broad spectrum of stakeholders, from homeowners to State governments, can find information here that can help them become more water-efficient. In the meantime, the EPA has provided funding to the California Urban Water Conservation Council (CUWCC, see *NewsNotes* #15) to study the feasibility and value of establishing a national organization devoted to promoting water efficiency. Your suggestions on how such a group could be most valuable in supporting your efforts to promote efficient water use in your communities and watersheds is welcome and can be made by filling out an on-line survey which will soon be available at http://www.cuwcc.org/national_cwe.lasso. [A related note - see the recently-posted press release at http://www.mass.gov/dep/pao/news/waterlos.htm announcing the awarding of $400,000 to promote water efficiency in MA DEP's Water Loss Prevention Competitive Grants Program (see http://www.mass.gov/dep/brp/mf/wlpgprog.htm; contact Malcolm Harper at (508) 767-2745 for more info).

Invasive species are considered a major threat to natural biodiversity, ranking second behind habitat loss. After a five year effort, the Massachusetts Invasive Plant Advisory Group (MIPAG), a statewide collaborative representing conservation organizations, natural resource agencies and professional nursery and horticultural groups concerned with the conservation of Massachusetts' landscape, including the New England Wild Flower Society (NEWFS) and the Mass. Natural Heritage and Endangered Species Program (NH&ESP) has produced a master list of invasive plants and a set of strategic recommendations to take action against invasive plants. The list, *The Evaluation of Non-Native Plant Species for Invasiveness in Massachusetts* (see http://www.newfs.org/conserve/invlist.htm), is based on scientific criteria establishing that 66 plant species present some level of danger to natural landscapes across the Commonwealth. The Strategic Recommendations For Managing Invasive Plants were produced to address actions which government agencies, professional botanists, landscapers, nurseries, local gardeners and other horticulturists can take to guard against the threat of invasive plants. Recommendations include the need for an early detection, and development of a rapid response system and adoption of voluntary codes of conduct by agencies, nurseries and landscapers. For more info, contact Chris Mattrick (cmattrick@newfs.org) or Bill Brumback (bbrumback@newfs.org). [A related note: NEWFS is co-hosting a New England Invasive Plant Summit, open to the public, on September 16-18, 2005, at the Sheraton Tara in Framingham; contact cmattrick@newfs.org or phone (508) 877-7630 ext. 3204 if you have any questions.]

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Non-government On-line Resources

American Whitewater's Paddling and StreamKeeper Information for Massachusetts
http://www.americanwhitewater.org/rivers/state/MA

This web page provides real-time streamflow levels for many of the best whitewater river runs in Massachusetts, along with advice as to whether that particular flow level is within, below or above the recommended optimum range for paddling. Click on any of the listed river segments for more info such as put-ins, take-outs, photos, scheduled releases and so on. Much of this information is posted by a network of volunteer StreamKeepers familiar with that section of river (see http://www.americanwhitewater.org/streamkeepers/ for info on how to join the StreamKeeper network).

French River Connection
http://frenchriverconnection.homestead.com/index.html

French River enthusiasts and advocates Ken Parker and Alan Dabrowski recently launched this new web page to help rally grassroots and community support for cleanup and restoration of the natural beauty and environmental quality of the French River and its watershed, located in south central MA and northeast CT. More content will be added to this page soon, such as information on how to order a copy of a French River Screensaver CD Alan put together, which is a compilation of over a hundred beautiful photos of French River-related flora, fauna and landscapes. The CD should be appealing to folks that don't (yet) have any connection to the French River, as well as others that might want to produce a similar product for their river. The CD will be available for purchase for $15 + $2 s+h., with some of the proceeds going toward French River restoration projects. For more info, contact Ken Parker at (508) 943-2698 or frenchriver@charter.net.

Living on Earth (LOE)
http://www.loe.org/shows/segments.htm?programID=05-P13-00020&segmentID=3#top

Celebrating its 12th anniversary in 2005, Boston-area-based Living on Earth with Steve Curwood is the weekly environmental news and information program distributed by National Public Radio. Every week over 302 National Public Radio stations broadcast Living on Earth's news, features, interviews and commentary on a broad range of ecological issues. The show airs in 9 of the 10 top radio markets and reaches 80% of the US. While, ironically, LOE is no longer carried on any of the Boston-area NPR radio stations, all current and past shows are available for free on-line. The link above takes you to a recently-aired LOE segment entitled "Save the Eels", in which reporter Nancy Cohen interviews brothers Tim and Doug Watts to learn about their fondness for and efforts to safeguard the future of the American Eel by, among other things, petitioning the federal government to list it as an endangered species. For more information, contact LOE at comments@loe.org , or call the LOE listener line at (800) 218-9988. [See http://www.gulfofmaine.org/times/summer2005/index.html for more on the American Eel.]

Massachusetts Zoning Reform
http://www.massmunilaw.org/zoning.htm?sid=60

Hosted by the City Solicitors and Town Counsel Association (CSTCA, http://www.massmunilaw.org), this page is maintained by the Zoning Reform Working Group (ZRWG) and its primary purpose is to provide information on the need for and current status of the proposed Massachusetts Land Use Reform Act (MLURA), including an upcoming public hearing on MLURA before two legislative committees at the State House on Wed., June 29th.

National Coalition for Pesticide-Free Lawns

http://www.beyondpesticides.org/pesticidefreelawns

Launched in April of 2005, the National Coalition for Pesticide-Free Lawns advocates safe, healthy, living lawns and landscapes with the use of organic and least toxic practices and products that nurture lawns and landscapes and protect the health of children, families, pets, wildlife and the environment from unnecessary exposure to toxic pesticides. The Coalition is a growing popular movement of environmental, consumer, and pesticide reform groups and concerned individuals, coming together to on all levels to educate the public, retailers, landscapers and policy makers about the hazards of lawn chemicals and the viability of safe alternatives. One of the Coalition's first actions was to publicly call on the two largest national lawn and garden retailers, Home Depot and Lowe's Home Improvement, to persuade them to offer a wider selection of natural, non-toxic lawn products coupled with materials and employee training on natural lawn care, and to reconsider the sale of "weed and feed" products due to environmental pollution and health hazards posed to children and dogs. [See http://www.toxicsaction.org for a similar campaign taking place in New England.]

On the Commons
http://onthecommons.org/about

A project of the Tomales Bay Institute, which is affiliated with Earth Island Institute, OntheCommons.org is web portal and blog that explores activism on behalf of the commons in all its variety. The commons is a powerful organizing principle for understanding countless aspects of nature, creativity and knowledge, local community and everyday experience. One of the great problems of our time, however, is the enclosure of the commons by market forces, often with the support of government. The majesty of the commons is being neglected. The purpose of this site is to explore the value of diverse commons, probe their distinctive dynamics and re-invent mechanisms for strengthening them. The commons provides a powerful critique of markets, property and neoclassical economics. But equally important, it is a force for innovation in social governance, political action, public policy and cultural change. OntheCommons.org investigates these issues through blogging, essays, book reviews, profiles of commons leaders, online archives, discussions and other resources. Please direct all correspondence and feedback to OntheCommons.org's Editor, Amherst, MA-based David Bollier, at bollier@essential.org.

Orion Grassroots Network (OGN)
http://www.oriononline.org/pages/ogn/index.cfm

Hosted by the award-winning, Great Barrington, MA-based Orion Magazine, OGN is a fast-growing network currently totaling some 794 environmental and community organizations in North America. OGN member organizations are recognized in their communities as leaders in the fields of conservation, restoration, education, democracy, justice, health, and economics and range from large to small, urban to suburban to rural. OGN connects the full diversity of groups involved in social and environmental movements, and occasionally engages them in coordinated campaigns on regional, national, and global issues, such as the Earth Charter and the Precautionary Principle. OGN members receive practical benefits such as exposure in Orion's publications and website; use of Orion's popular Internship & Career Service; access to Orion's Events Calendar and Publication & Resource List; and reprint rights for Orion Magazine articles. For more info, contact OGN coordinator Erik Hoffner at grassroots@orionsociety.org or (888) 909-6568.

The Film Connection (TFC)
http://www.thefilmconnection.org/about.asp

Founded as a not-for-profit organization in November 2003, the Seattle-based TFC is a national public film library that offers a diverse, compelling and growing library of films (on DVD) with authentic visions and voices that explore the world and the human condition from all types of world-class filmmakers. By making these films available for discussion, The Film Connection promotes community, civic engagement and positive social change in an open exchange of ideas, opinions and perspectives. TFC encourages community groups of acquaintances, friends and family to watch film together and to learn, discuss and debate. All of TFC's film selections and film programs include discussion models, film related resource material and tools for building community and becoming involved with important issues. Films borrowed from TFC are available at no charge (not even shipping) but are for non-public performance only (i.e., host your screening in a space that is not open to the pubic; limit your audience to 15 or less; do not publicize or advertise your screening and do not charge admission). TFC's film library has a large number of environmentally-themed films available; in addition, you might want to check out the *YES! Magazine: Summer 2005 Film Program* (see http://www.thefilmconnection.org/programinfo.asp?id=45) which focuses on outdoor commons that enhance our connection to community and to the natural world.

U.S. Non-Profit Water Directory
http://www.citizen.org/documents/waterdirectory.pdf

Recently released by the consumer and environmental protection group Public Citizen, this first-of-its-kind directory lists more than 700 groups around the country that are working to protect public water resources at the local, state or national level. A hard copy of the Directory is available for $15 plus s+h by calling (202) 454-5124.

WET in the City
http://www.wetcity.org

Sponsored by the Council for Environmental Education (CEE, http://www.c-e-e.org), WET in the City engages K-12 youth in hands-on activities that creatively explore the science of water, its cultural context, and complex issues surrounding its management and stewardship. The program is delivered at the local level, city by city, and targets urban educators with relevant, localized water education through a network of city partners. Resources at the WET in the City web page include a *Curriculum and Activity Guide*, a multi-disciplinary, hands-on urban water education curriculum, and a new publication entitled *Water Watchers: Conserving Water at Your School and Home*, a school water audit and conservation handbook, designed to help educators mentor a student-driven audit of water use—and waste—at school and in their homes. Lessons in the handbook are arranged to lead students from awareness of basic water conservation issues to responsible action and stewardship of their water environment. Educators will first introduce students to the water cycle, issues of water use, pollution, and potential water conservation measures. Students then have the opportunity to conduct a hands-on investigation of their school water system, monitor water use over time and brainstorm ideas for ways water can be conserved. Using the results of a cost benefit analysis, students take action by preparing and presenting a water conservation proposal for their school and tracking the results. The goal: student leaders in water conservation. For more info, contact Julie McDonald at (713) 520-1936.

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Publications

Today's kids are increasingly disconnected from the natural world, says child advocacy expert Richard Louv, author of the new book *Last Child in the Woods: Saving Our Children From Nature-Deficit Disorder*, even as research shows that "thoughtful exposure of youngsters to nature can... be a powerful form of therapy for attention-deficit disorder and

other maladies." Instead of passing summer months hiking, swimming and telling stories around the campfire, children these days are more likely to attend computer camps or weight-loss camps: as a result, Louv says, they've come to think of nature as more of an abstraction than a reality. Indeed, a 2002 British study reported that eight-year-olds could identify Pokémon characters far more easily than they could name "otter, beetle, and oak tree." Gathering thoughts from parents, teachers, researchers, environmentalists and other concerned parties, Louv argues for a return to an awareness of and appreciation for the natural world. Not only can nature teach kids science and nurture their creativity, he says, nature needs its children: where else will its future stewards come from? Louv's book is a call to action, full of warnings—but also full of ideas for change.

"I like to play indoors better 'cause that's where all the electrical outlets are," reports a fourth grader. But it's not only computers, television, and video games that are keeping kids inside. It's also their parents' fears of traffic, strangers, Lyme disease, and West Nile virus; their schools' emphasis on more and more homework; their structured schedules; and their lack of access to natural areas. Local governments, neighborhood associations, and even organizations devoted to the outdoors are placing legal and regulatory constraints on many wild spaces, sometimes making natural play a crime. As children's connections to nature diminish and the social, psychological, and spiritual implications become apparent, new research shows that nature can offer powerful therapy for such maladies as depression, obesity, and attention deficit disorder. Environment-based education dramatically improves standardized test scores and grade-point averages and develops skills in problem solving, critical thinking, and decision making. Anecdotal evidence strongly suggests that childhood experiences in nature stimulate creativity. In *Last Child in the Woods*, Louv talks with parents, children, teachers, scientists, religious leaders, child-development researchers, and environmentalists who recognize the threat and offer solutions. Louv shows us an alternative future, one in which parents help their kids experience the natural world more deeply—and find the joy of family connectedness in the process. *Last Child in the Woods* (336pp., $24.95) is available in most bookstores, and additional info about author Richard Louv is available at http://www.thefuturesedge.com/. Last but not least, a recent (6/6/05) edition of WBUR-FM's "*On Point*" radio program featured Louv and his book; you can listen to the show on-line at http://www.onpointradio.org/shows/2005/06/20050606_b_main.asp.

Over the past five years, the U.S. EPA's Office of Ground Water and Drinking Water funded five national nonprofit organizations (one of which was the Nashua River Watershed Association) to launch source water protection demonstration projects in communities around the country. The purpose of the projects was to build on state Source Water Assessment Programs (SWAPs) in order to move communities from planning to implementing protection for drinking water sources. Successful pilot projects could then be replicated by state and local governments and water suppliers around the country. In order to glean the lessons learned and identify best practices, the Trust for Public Land (TPL) led a joint review of the five grantees' source protection demonstration projects during the spring and summer of 2004. The latest publication in TPL's Land & Water series, *Path to Protection*, summarizes findings from the projects and outlines ten strategies to put state and local governments on the "path to protection." Go to http://www.tpl.org/tier3_cd.cfm?content_item_id=19077&folder_id=175 for a free downloadable copy of this document. [A related note: the Massachusetts office of Clean Water Action recently issued a report on the status of and challenges to source water protection in the Commonwealth, paying particular attention to municipal water supplies needing additional protection. The report, by CWA staffer and Cohasset public water supply official John McNabb [(617) 338-8131, mcnabbj@mindspring.com], is entitled "*Funding Shortfalls Threaten Drinking Water Quality: Improvements needed to protect Massachusetts' Drinking Water*", and may be read on-line at http://cleanwateraction.org/ma/DrinkingWaterFundingReport.pdf].

Originally published in 1988, *The Conservation Easement Handbook* has long been the definitive resource on conservation easements (called "conservation restrictions" in Massachusetts). Jointly published by TPL and the Land Trust

Alliance (LTA, http://www.lta.org), the thoroughly revised and expanded second edition offers 21 chapters containing information on drafting easements and managing an easement program. It provides how-to tips and checklists for land trust staff and board members, detailed drafting guidelines, and a CD-ROM of sample documents. The 555-page handbook is available for $49.95 and may be ordered on-line at http://www.lta.org/publications/CEHorder.htm; additional info and a sample chapter are available at http://www.tpl.org/tier3_cd.cfm?content_item_id=19577&folder_id=175.

The U.S. EPA has recently published a new document entitled *National Management Measures to Control Nonpoint Source Pollution from Forestry*, a technical guidance and reference document for use by public and private forest owners and managers in the implementation of nonpoint source (NPS) pollution management programs in forest settings. The new guidance contains information on the best available, economically achievable means of reducing nonpoint source pollution that can result from forestry activities. For more information about the guidance or to download the document (in PDF format), go on-line to http://www.epa.gov/owow/nps/forestrymgmt/. Alternatively, you can receive a free copy of this guidance by contacting the National Service Center for Environmental Publications via phone at (800) 490-9198 or via the Web at http://www.epa.gov/ncepihom and requesting Publication # EPA 841-B-05-001. For more information, please contact Chris Solloway at solloway.chris@epa.gov.

Looking for more resources in your efforts to "keep water local"? One way is to treat water on-site rather than pumping from a distant water source or discharging into a sewer connection to an out-of-basin centralized treatment facility. Forester Publications, publishers of the highly useful and informative *Stormwater* (http://www.stormh2o.com/sw.html) and *Erosion Control* (http://www.erosioncontrol.com/ec.html) magazines, recently announced the launch of a new magazine called *Onsite Water Treatment* (http://www.onsitewater.com/ow.html), " the first magazine to address residential, industrial, agricultural, and institutional water treatment issues with effective, compliant, cost-saving, and easy-to-implement solutions". The first issue of *Onsite Water Treatment* is due out this summer. FYI, Complimentary subscriptions for printed copies of all three of these Forester periodicals are available to "qualified professionals" (which is interpreted pretty broadly to include just about anyone with a sincere interest); alternatively, you can read on-line versions of any of the above publications (as well as sign up for the free subscriptions to the printed magazines) at their respective websites.

Decades, or even centuries, of changing and competing land uses have left many of the world's streams degraded, in poor health, and out of balance with the ever-shifting dynamics of their watersheds. *A Handbook for Stream Enhancement and Stewardship*, published by The Izaak Walton League of America (IWLA, http://www.iwla.org – see also http://www.iwla.org/sos/workshops.html) and due out this summer, is a basic resource intended to help individuals, groups, organizations, companies, communities, and governments plan and carry out environmentally sound, cost-effective stream corridor assessment, enhancement, and stewardship programs as they strive to bring degraded stream systems back to levels of stability and ecological well-being. Using the watershed as the basic unit of reference, the Handbook provides ideas and information with which readers can assess and document local stream conditions, learn about and evaluate methods of enhancement, devise and implement enhancement plans, and then maintain the stream and stream corridor in its enhanced state of better health and balance. While not a comprehensive technical manual for professionals trained in stream restoration, this resource provides a solid foundation by which volunteers may become informed observers, advocates, and organizers of stream enhancement programs and participants in their implementation. While the *Handbook* is expected to retail for at $34.95 when it goes on sale later this year, it is possible to order pre-publication copies directly from the publisher, McDonald & Woodward [(800) 233-8787), (740) 321-1141 (fax), mwpubco@mwpubco.com, or http://www.mwpubco.com) and receive a 30% discount. For more info, contact Leah Miller, IWLA Director of Watershed Programs, at (301) 548-

0150 ext 219.

Holistic analysis of a community's wastewater needs leads to cost savings and better service, according to a new report from the Rocky Mountain Institute (RMI) and the U.S. EPA. *Valuing Decentralized Wastewater Technologies* presents a "catalog" of the economic advantages and disadvantages of decentralized wastewater systems relative to larger scale, centralized solutions. "One of the problems with traditional wastewater facility planning is that it doesn't generally consider the *entire* system and the costs associated with each part of the system," said water expert Richard Pinkham, formerly of RMI, now with Booz Allen Hamilton. For example, decentralized systems can avoid drawdown of water tables and reductions in stream base flow that can occur because of infiltration, inflow, and other alterations to a watershed water budget caused by sewers. A related report, *Case Studies of Economic Analysis and Community Decision Making for Decentralized Wastewater Systems*, prepared by RMI for the National Decentralized Water Resources Capacity Development Project (NDWRCDP, an EPA-funded research and education program), consists of case studies (including one from the Boston metro area) around the U.S. that struggle with wastewater infrastructure issues. Both reports are available as free downloads from RMI's website, (http://www.rmi.org). For more info, contact Richard Pinkham at (303) 221-7565 or pinkham_richard@bah.com.

From the May/June 2005 issue of E – The Environmental Magazine (http://www.emagazine.com): "Make no mistake: the world water supply is in crisis, and things are getting worse," authors Robin Clarke and Jannet King warn in the opening chapter of *The Water Atlas: A Unique Visual Analysis of the World's Most Critical Resource* (The New Press, $24.95). This beautifully illustrated and user-friendly presentation of maps, images, tables and graphs expertly describes the state of the world's water, from dams and floods to analysis of political and corporate control. The engaging atlas is a useful aid for the student and general reader, as well as for the scientist or policy maker in understanding the big picture reality of our most important global resource: water. The atlas concludes with three possible future scenarios for water based upon usage and trends. All of them are alarming. To order, or for more info on *The Water Atlas*, go on-line to http://www.thenewpress.com/books/wateratlas.htm.

Bringing the water scarcity issue "closer to home" is a new research paper recently produced by Robert Tannenwald and Nicholas Turner for the newly-created New England Public Policy Center of the Federal Reserve Bank of Boston entitled *Water, Water Everywhere: Dare I Drink a Drop? (with apologies to Samuel Taylor Coleridge)*. Here's the abstract: "Given New England's ample rainfall, green forests, and extensive wetlands, many of the region's inhabitants might question the notion that it faces potentially severe water shortages. Yet, parts of the region already confront such shortages. These shortages are likely to spread, absent corrective action. This paper describes the characteristics of New England responsible for its looming water problems, identifies areas within the region most vulnerable to such problems, and analyzes alternative strategies for alleviating them. Small, shallow, porous aquifers are the region's primary geological impediment to trapping and tapping adequate water supplies. Urbanization and a spatial mismatch between economic growth and water availability are contributing factors. Areas within the region most vulnerable to water shortages include, but are not limited to, southern Maine, southern New Hampshire, northern Vermont, and Massachusetts' North Shore and Route 495 corridor. While no single solution to potential water shortages is clearly superior, the authors conclude that conservation is a promising, effective tactic that should be an important component of any water strategy." *Water, Water Everywhere…?* may be read on-line at http://www.bos.frb.org/economic/neppc/researchreports/2005/rr0501.htm.

A final note: Riverways staff person Carrie Banks would like Riverways *NewsNotes* readers to know that she has an EnviroScape® (http://www.enviroscapes.com/) model available to loan to groups in the Greater Connecticut (includes Deerfield, Westfield, Chicopee and Millers), Housatonic and Hoosic Watersheds. The EnviroScape® Watershed/Nonpoint Source model is a demonstrative education tool that helps students learn about how different

land uses affect water quality. Carrie would typically like at least two weeks adavance notice so that she can make arrangements for pick-ups and drop-offs. Carrie would also request those who borrow it to restock the EnviroScape®'s supplies, which are usually things that folks can find in their own kitchens, e.g. drink mixes, soap, sponges, etc. Anyone interested in borrowing the model should contact Carrie at (413) 268-3129 or carrie.banks@state.ma.us.

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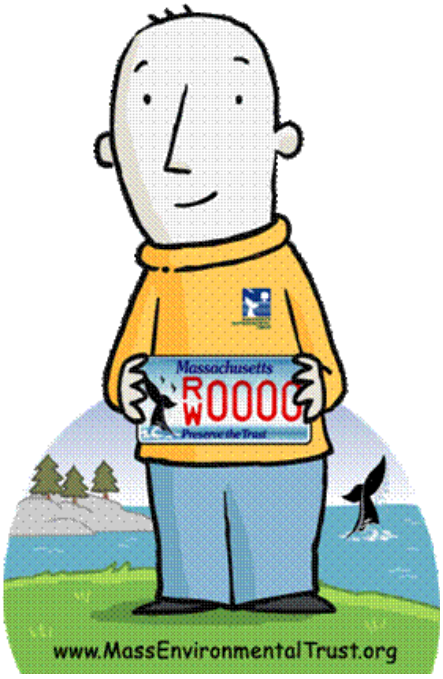

FYI: The Massachusetts Environmental Trust (MET, http://massenvironmentaltrust.org) provides funding to many river and other water resources protection and restoration projects throughout the Commonwealth. A major source of MET's funding comes from the sale of environmental license plates. Besides the "whale" plate (often accompanied in print ads by "Bob", MET's new marketing icon), sale of the "FW" ("fish and wildlife") and "BV" ("Blackstone Valley") plates also help fund MET's grant-making programs. (By the way, these three are the only Mass. specialty license plates that exclusively fund environmental programs). Getting an environmental plate is easy and can be done on-line at http://www.mass.gov/rmv or at your local Registry of Motor Vehicles office.

•Does your car have an environmental license plate?

Riverways Staff:

Operational funding:

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Russ Cohen, Rivers Advocate
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